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Inhibitory activity of cranberry extract on the bacterial adhesiveness in the urine of women: an ex-vivo study.

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Source

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Abstract

Strains of uropathogenic E. coli are responsible for approximately 90% of community-acquired, uncomplicated cystitis, and fimbriae represent the adhesive factors enabling E. coli to be anchored to uroepithelial cells in the first step of the infectious process. Recently, a few studies have shown that a correlation between the consumption of cranberry (Vaccinium macrocarpon) and prevention of UTI is related to the ability of proanthocyanidins to reduce the bacterial adhesion to uroepithelial cells. In this study we evaluate the inhibitory activity of urine of healthy women treated with tablets containing cranberry extract on the adhesiveness of E. coli to uroepithelial human cells. Two groups of 12 female volunteers each, aged between 18 and 65 years, were enrolled, one group with negative history and one group with positive history of recurrent cystitis. Subjects were treated with the active product or placebo in a random, cross-over, double-blinded sequence for one week in each of the two treatment sequences. Urine samples were collected at the beginning and the end of each study period. Tests of bacterial adhesiveness were performed with two strains of E. coli (ATCC 25922 and ATCC 35218) on HT1376 human bladder carcinoma cells. Significant reductions of bacterial adhesiveness were observed in women who received cranberry extract (-50.9%; p less than 0.0001), regardless of their medical history and the treatment period in the cross-over sequence. No changes were observed with placebo (-0.29%; n.s.). This ex-vivo study showed that the assumption of cranberry extract in suitable amounts can have an anti-adhesive activity on uropathogenic E. coli.